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DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING



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DIRECTOR

TO: Solid Waste Landfill Owners and Operators

FROM: George W. Bruchmann, Chief, Waste and Hazardous Materials Division 

DATE: June 9, 2006

SUBJECT: Disposal of Wastewater Treatment Plant (WWTP) Sludge at Type II Landfills

The Department of Environmental Quality (DEQ), Waste and Hazardous Materials Division (WHMD), is providing this memo to inform owners and operators of Type II landfills of the potential problems associated with the acceptance and disposal of large volumes of WWTP sludge. The problems we have observed associated with the acceptance of WWTP sludge include odors from loaded and emptied hauling vehicles, track-out and spillage of sludge on haul roads or public roads near the facility, management of sludge at the active face, controlling odors directly from the sludge or from sludge-trench excavations, and increased landfill gas production volumes and the resultant increase in fugitive odor emissions due to the extra influx of moisture and other substances that facilitate degradation.

The WHMD has documented nuisance odor problems at several landfills related to the acceptance and disposal of WWTP sludge and the operational procedures used to manage that disposal. The owner and operator of a landfill in southeast Michigan that is accepting large volumes of WWTP sludge (some untreated) has recently committed to stop accepting the material in an effort to resolve such nuisance odor problems. This situation is expected to cause WWTP generators to seek alternative landfill disposal locations. If you are considering accepting this material, the WHMD would like to work with you as we will continue to carefully monitor the disposal locations of this material in the future to attempt to ensure that it is managed properly to prevent the creation of nuisance conditions and landfill gas control issues.

It appears that the severity of the odor issues created by accepting WWTP sludge are, in part, directly related to the volume of this waste stream and whether the waste stream has been pretreated for odors. In addition, proper management of the sludge at the landfill is needed to minimize odors.

Untreated WWTP sludge is a source of major concern due to the more potent odor associated with it. Facilities should be wary of accepting WWTP sludge that has not been properly treated to reduce odors. Please be aware that there are various levels of treatment available and that you should work with the generator of this waste to establish the proper level of pretreatment to control odors.

Disposal of WWTP sludge at the working face of the landfill may present operational challenges that could include the inability to mix and cover the sludge, sludge getting onto landfill equipment, and track-out and odor problems associated with vehicles that have come into contact with sludge at the working face.

The use of excavated trenches in previously placed wastes to attempt to handle larger volumes of sludge also has potential problems. Although this method helps reduce the contact of vehicles with the sludge, the old waste excavated from these areas can result in strong

offensive odors. In addition, the sludge is not mixed into the other waste and covered quickly using this method and, therefore, odors may persist for a longer period until the trench is filled and covered.

The use of aerosol water/odor neutralizer solutions to alleviate odors from sludge disposal can be of some benefit, but has not been proven effective for adequately eliminating nuisance odors when large volumes of sludge are disposed. In addition, the equipment used to deliver the odor neutralizer may experience operational problems during winter months due to freezing temperatures and, therefore, may only be a partial control.

In the WHMD's experience, the disposal of large volumes of WWTP sludge has caused gas production to increase dramatically. Although the overall gas production potential of the waste mass does not change, the rate of production of landfill gas appears to be greater within a shorter time period. This may necessitate the installation of additional gas collection and control system components earlier than planned and/or prior to the time frames specified by the federal New Source Performance Standards for municipal solid waste landfills to control fugitive odor emissions.

Facilities that accept WWTP sludge must also consider its impact on the waste mass in terms of moisture addition, especially when the disposal of the material is coupled with significant leachate recirculation in the same area. The WHMD may consider the composition of the waste stream (i.e., percentage of wet sludge) when evaluating and reevaluating leachate recirculation plans to attempt to determine if the facility is capable of managing the consequences of such significant moisture additions to the waste mass. It is possible that special conditions will need to be included in the approval or renewal of leachate recirculation plans to address the potential for problems associated with disposal of WWTP sludge.

Although there are various potential issues, it is possible that, with the proper controls at both the WWTP and landfill, some percentage of WWTP sludge as a part of the overall waste stream can be handled and disposed without significantly affecting the effectiveness of the gas collection and control system or creating nuisance odor conditions. Prior to accepting WWTP sludge for disposal, the WHMD asks that you carefully consider and address what type and level of pretreatment will be required, what volume will be manageable, and what operational and/or engineering controls will be necessary.

In addition, please note that the WHMD is currently working in conjunction with the DEQ, Water Bureau (WB), on this issue, and steps are being taken to also inform WWTP owners and operators of the problems that disposing of WWTP sludge in landfills can create. It is the DEQ's expectation that appropriate disposal of WWTP sludge can be achieved, and compliance issues avoided, if landfills are conscientious of the potential challenges in managing this material and if the generators and disposal sites work together to develop adequate pretreatment methods to help alleviate odors.

Thank you for your attention to this matter. If you have any questions, please contact your local WHMD office.

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